Claims:

1. A recombinant plant cell or part thereof containing a DNA molecule comprising a sequence encoding a PAP II protein.

2. The recombinant plant cell or part thereof of claim 1, wherein said plant cell part is a protoplast.

3. The recombinant plant cell of claim 1 wherein said sequence is SEQ ID NO:3.

4. The recombinant plant cell of claim 1 wherein said sequence encodes PAP II (1-285).

5. The recombinant plant cell of claim 1 wherein said sequence encodes a mutant PAP II protein that has intact catalytic active site amino acid residue (E172) and exhibits anti-viral and/or anti-fungal activity.

6. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein which is PAP II (1-285, G72D).

7. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein which is PAP II (1-285, L254R)

8. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein which is PAP II (1-285, L254A).

9. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein which is PAP II (1-237).

10. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein which is PAP II (1-259).

11. The recombinant plant cell of claim 5 wherein said sequence encodes a PAP II protein selected from the group consisting of PAP II (1-237), PAP II (1-238), PAP II (1-239), PAP II (1-240), PAP II (1-241), PAP II (1-242), PAP II (1-243), PAP II (1-244), PAP II (1-245), PAP II (1-246), PAP II (1-247), PAP II (1-248), PAP II (1-249), PAP II (1-250), PAP II (1-251), PAP II (1-252), PAP II (1-253), PAP II (1-254), PAP II (1-255), PAP II (1-256), PAP II (1-257), PAP II (1-258) and PAP II (1-259).

12. A transgenic plant produced from the protoplast of claim 2.

13. A transgenic plant or part thereof comprising a DNA molecule encoding a PAP II protein that upon expression exhibits anti-viral and/or anti-fungal activity.

14. The transgenic plant of claim 13 which is a monocot plant.

15. The transgenic plant of claim 14 wherein said monocot plant is a cereal crop plant.

16. The transgenic plant of claim 13 which is a dicot plant.

17. Seed from the transgenic plant of claim 13.

18. A DNA molecule comprising a sequence encoding a PAP II protein that has intact catalytic active site amino acid residue (E172) and exhibits anti-viral and/or anti-fungal activity.

19. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein which is PAP II (1-285, G72D).

20. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein which is PAP II (1-285, L254R)

21. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein which is PAP II (1-285, L254A).

22. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein which is PAP II (1-237).

23. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein which is PAP II (1-259).

24. The DNA molecule of claim 18 wherein said sequence encodes a PAP II protein selected from the group consisting of PAP II (1-237), PAP II (1-238), PAP II (1-239), PAP II (1-240), PAP II (1-241), PAP II (1-242), PAP II (1-243), PAP II (1-244), PAP II (1-245), PAP II (1-246), PAP II (1-247), PAP II (1-248), PAP II (1-249), PAP II (1-250), PAP II (1-251), PAP II (1-252), PAP II (1-253), PAP II (1-254), PAP II (1-255), PAP II (1-256), PAP II (1-257), PAP II (1-258) and PAP II (1-259).

25. An isolated and purified mutant PAP II protein having intact catalytic active site amino acid residue (E172) and exhibits anti-viral and/or anti-fungal activity.

26. The PAP II protein of claim 25 which is PAP II (1-285, G72D).

27. The PAP II protein of claim 25 which is PAP II (1-285, L254R)

28. The PAP II protein of claim 25 which is PAP II (1-285, L254A).

29. The PAP II protein of claim 25 which is PAP II (1-237).

30. The PAP II protein of claim 25 which is PAP II (1-259).

31. The PAP II protein of claim 25 which is selected from the group consisting of PAP II (1-237), PAP II (1-238), PAP II (1-239), PAP II (1-240), PAP II (1-241), PAP II (1-242), PAP II (1-243), PAP II (1-244), PAP II (1-245), PAP II (1-246), PAP II (1-247), PAP II (1-248), PAP II (1-249), PAP II (1-250), PAP II (1-251), PAP II (1-252), PAP II (1-253), PAP II (1-254), PAP II (1-255), PAP II (1-256), PAP II (1-257), PAP II (1-258) and PAP II (1-259).

32. A vector comprising the DNA molecule of claim 25.

33. A method of making a plant that has increased resistance to viruses and/or fungi, comprising preparing a transgenic plant that expresses a DNA molecule comprising a sequence encoding a PAP II protein.

34. The method of claim 33 comprising stably transforming a protoplast with the DNA molecule, and regenerating the transgenic plant from the transformed protoplast.

35. The method of claim 33 comprising introducing the DNA molecule into a plant part, and regenerating the transgenic plant from the plant part containing the DNA molecule.

36. A method of identifying a PAP II protein having reduced cytotoxicity, comprising:

(a) providing a eukaryotic cell stably transformed with a DNA molecule comprising a sequence encoding a PAP II protein, operably linked to an inducible promoter functional in said eukaryotic cell;

(b) culturing the transformed cell in medium;

(c) adding an inducer to said medium; and

(d) determining extent of growth of the cultured cell.

37. The method of claim 36 wherein said eukaryotic cell is a yeast cell.